

REMARKS

INTRODUCTION:

In accordance with the foregoing, claims 1, 2, 5, 10-12, 14-17 and 20 have been amended. Claims 1-22, 24 and 25 are pending and under consideration.

REJECTION UNDER 35 U.S.C. §103:

Claims 1-3, 5-10, 12-25 are rejected under 35 U.S.C. §103(a) as being unpatentable over Shimamura et al. (U.S. Patent 5,522,509) in view of Matsuoka et al. (U.S. Patent 5,875,434) and Kelly et al. (U.S. Patent 6,010,074).

Using independent claim 1 as an example, this claim recites that the reading means repeats an inquiry and that the communication control logic is to "to answer the inquiry from the reading means, to communicate with the reading means, and to enter a state of not answering another inquiry from the reading means after communicating with the reading means for a predetermined period."

The random period of the invention of claim 1 can be a multiple of a slot time that is greater than a one way time. Therefore, the present invention operates in less time than the cited references. Specifically, the processing operations before communication between the reading means and a data carrier are 1) the reading means inquires, 2) the data carrier waits a random period, 3) the data carrier answers the inquiry, and 4) communication between the reading means and a data carrier is complete. Therefore, the slot time is the time which is necessary for answering the inquiry.

In contrast, Shimamura discloses automatic calculation using resonance tags. Resonance tags are identified according to resonance frequency. It can be said that each tag has its own exclusive communication means. Plural tags can be identified at a time, by oscillating radio waves of plural frequencies. Although using resonance tags has an advantage that plural tags can be identified at one time, at the same time, there is a serious disadvantage. Specifically, in practice, a very limited number of resonance frequencies can be used, therefore a large number of tags cannot be handled with resonance tags.

On the other hand, the present invention does not suffer from this disadvantage.

In Kelly, the random period is a multiple of a slot time that is greater than round trip time.

The processing operations of Kelly are as follows. First, the target transmits "WAKEUP", 2) fare tags transmits "PING" after a random wait time, 3) the target transmits "PONG-VALID", 4)

fare tags determine to respond with "IM AWAKE" message or to be silenced. Therefore, Kelly's wait period is multiple or greater than a round trip time.

Furthermore, it would not have been obvious to combine Kelly et al. with Shimamura, because Shimamura has to recognize all plates placed on a tray to calculate a total amount. However, Kelly discloses resolving a collision, and data collection from only one tag when a plurality of tags are near the target. If Kelly is combined with Shimamura, correct calculation is impossible.

On the other hand, the present invention collects data of all data carriers because the reading means repeats inquiry and data carriers enter a state of not answering another inquiry from the reading means after communication with the reading means for a certain period.

Claim 4 is rejected under 35 U.S.C. §103(a) as being unpatentable over Shimamura et al., as modified by Matsuoka et al. and Kelly et al. as applied to claim 2, and further in view of Ehrat (U.S. Patent 3,836,755).

It is respectfully submitted that Ehrat does not overcome the above-discussed deficiencies in Shimamura et al, Matsuoka et al. and Kelly.

Claim 11 is rejected under 35 U.S.C. §103(a) as being unpatentable over Shepley (U.S. Patent 5,478,989) in view of Matsuoka et al. (U.S. Patent 5,875,434) and Kelly (U.S. Patent 6,010,074).

It is respectfully submitted that Shepley does not overcome the above-discussed deficiencies in Matsuoka et al. and Kelly.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.


Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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